

CLAIMS

1. A helmet for displaying environmental images in critical environments, comprising at least one video camera and means for displaying environmental images, characterized in that it comprises a supporting structure that can be anchored to said helmet in order to support said at least one video camera and said display means, said supporting structure comprising a front adapter that can be coupled to a front edge of said helmet, a rear adapter that can be coupled to a rear edge of said helmet, and a connecting element for mutually connecting said front adapter and said rear adapter.

2. The helmet according to claim 1, characterized in that it comprises a frame that is mounted detachably on said front adapter, said frame comprising means for supporting said video camera and means for supporting said display means.

3. The helmet according to claim 2, characterized in that said frame comprises a bridge-like structure that mutually connects elements for coupling to said front adapter, said coupling elements being arranged on opposite ends of said bridge-like structure.

4. The helmet according to claim 3, characterized in that said means for supporting said at least one video camera are fixed to said bridge-like structure and comprise at least one mechanical connector for fixing said video camera to said supporting structure and a power supply connector for connecting said video camera to a power supply.

5. The helmet according to claim 4, characterized in that said power supply comprises a battery that is mounted monolithically with said rear adapter and comprises a cable for the connection to said power supply connector of said supporting means.

6. The helmet according to claim 3, characterized in that said front adapter protrudes with respect to said helmet substantially at right angles to the front part of said helmet, forming a peak, said peak comprising an edge

and said coupling elements comprising hooks for coupling to said edge.

7. The helmet according to claim 6, characterized in that said hooks form a guide for the sliding insertion of said peak in said frame, said hooks having a substantially straight longitudinal extension.

5 8. The helmet according to claim 3, characterized in that said coupling elements comprise a respective pivot on which said display means are fixed so that they can rotate.

9. The helmet according to claim 1, characterized in that said display means comprise at least one display.

10 10. The helmet according to claim 9, characterized in that said display comprises opposite side walls in which there is a respective guide, each pivot of said coupling elements being engaged with the respective guide of said side walls in order to allow a combined rotary and translational motion of said display with respect to said helmet.

15 11. The helmet according to claim 1, characterized in that said front adapter and said rear adapter comprise respective undercuts whose profile is complementary to said front edge and to said rear edge respectively.

12. The helmet according to claim 1, characterized in that it comprises means for radio communication of environmental images, said
20 image communication means being connected electronically to said at least one video camera and/or to said means for displaying environmental images, in order to transmit remotely environmental images acquired by said video camera and/or display on said display means environmental images acquired by a remote video camera.

25 13. The helmet according to claim 12, characterized in that said means for radio communication are mounted detachably on said rear adapter.

14. The helmet according to claim 1 or 12, characterized in that it comprises a PIP circuit for simultaneously displaying images acquired by
30 different video cameras on said display means.

15. The helmet according to claim 14, characterized in that said PIP circuit is mounted detachably on said rear adapter.

16. The helmet according to claim 12, characterized in that said means for communicating environmental images comprise at least one transmitter for transmitting by radio at least one video signal of a respective video camera over a respective communication channel and at least one receiver for receiving by radio at least one video signal on a second communication channel.

17. The helmet according to any one of the preceding claims, characterized in that it comprises means for deflecting the environmental image that are mounted upstream of said at least one video camera, said deflection means comprising motorized means and a mirror that is mounted on said motorized means upstream of said at least one video camera in order to reflect the environmental image onto said at least one video camera according to multiple angles and accordingly widen the viewing field.

18. The helmet according to claim 17, characterized in that said motorized means comprise a galvanometer in order to make said mirror oscillate between two extreme positions, said environmental image deflection means furthermore comprising a shutter that is mounted between said mirror and said at least one video camera, in order to acquire the environmental image at said extreme positions.

19. The helmet according to claim 17, characterized in that it furthermore comprises stereoscopic vision means, said stereoscopic vision means and said image deflection means being mounted on different planes, said stereoscopic vision means comprising two eyepieces, each eyepiece being coupled to a reflecting means that is orientated so as to reflect the environmental image onto said mirror mounted on said motorized means.

20. The helmet according to any one of the preceding claims, characterized in that said display means comprise a display chosen from the group that comprises liquid-crystal displays and displays of the organic light

emission (OLED) type.

21. The helmet according to claim 1, characterized in that it comprises a plurality of video cameras arranged along mutually perpendicular planes and selected from the group that comprises video
5 cameras that operate in the spectral domain of visible optical frequencies, video cameras of the thermographic type that operate in the infrared spectral domain, and video cameras with image intensifier, which operate in a spectral domain that comprises near-infrared optical frequencies.

22. The helmet according to claim 21, characterized in that it
10 comprises splitter laminas in order to divide the acquired environmental images into their various spectral components and direct them toward said plurality of video cameras.

23. The helmet according to any one of the preceding claims, characterized in that it comprises means for digital recording of the acquired
15 environmental images, said recorder being mounted detachably on said rear adapter.